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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,887	09/29/2003	Fred Gehrung Gustavson	YOR920030010US1	7986
48150 7590 05/21/2007 MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER NGO, CHUONG D	
			ART UNIT 2193	PAPER NUMBER
			MAIL DATE 05/21/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/671,887

Applicant(s)

GUSTAVSON ET AL.

Examiner

Chuong D. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03/02/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3 pages</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1,2 and 4-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-9 and 19-27 are directed to a computer implemented method that merely involve manipulations and calculations of data values, claims 10-14 are although directed to an apparatus, broadly encompass a general computer implementing the method, and claims 15-18 are directed to a computer program for implementing the method. In order for a claimed invention that is directed to such a computer implemented method that merely involve manipulations and calculations of data values, or a computer or a computer readable medium having a computer program implementing the method to be statutory, the claimed invention must accomplish a practical application. That is the claimed invention must transform an article or physical object to a different state or thing, or produce a useful, concrete and tangible result. State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Also see "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", OG Notices: 22 November 2005. It is clear from claims 1,2 and 4-27 that the claims merely involves calculations and manipulations of data. The claimed invention does not transform an article or physical object to a different state or thing. The inputs are numbers and the results are also numbers. Further, the result of the invention is merely numerical values without a practical

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application recited in the claims. It is not real world result, and thus is not useful, concrete and tangible. Therefore, the claimed invention is directed to non-statutory subject matter as the claims fail to accomplish a practical application.

3. Claims 15-18 are also rejected under 35 U.S.C. 101 as being directed to signal bearing medium that clearly including carrier signal and non computer readable storage medium which is non-statutory subject matter.

4. Claims 1,2,5-10,12-16,18,19,21-23 and 25-27 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1, the limitation of the recitation "storing data contiguously ... in an increment block size", lines 3-4, is unclear, since data of a matrix contiguously stored in a memory can be viewed as being stored in any increment block size. Claims 10,15,19 also have the same problem.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1,2,5-10,12-16,18,19,21-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myszewshi (5,099,447) in view of Lao et al. (2003/0088600).

As per claims 1,2,5,6,7,9,10,12,14,15,18 and 25-27, Myszewshi discloses an execution of a matrix subroutine including DGEMM (see col. 1, line 35) in which the matrix is divided into blocks for storing, retrieving and operating on, wherein block size is based on the cache size and clearly including rectangular blocks such that the width of the blocks in a first term matrix is the same as the height of the corresponding blocks in the second term matrix (see col. 4, line 55-64). It noted that Myszewshi does not specifically disclose that the block fits into a wording space of the cache. However, Lao et al. discloses on page 4, paragraph [0071] that the guide for optimally partitioning a matrix is to use large contiguous blocks but make them small enough to fit in the cache. Thus, it would have been obvious to a person of ordinary skill in the art to have the block size that fits into the cache as taught by Lao et al in order to take maximum advantage of the cache and to keep cache misses at a minimum. Further, the combined teaching of references is clearly applicable for system having one dimensional L1 or L2 caches which has a first dimension being one, and thus is smaller than a corresponding first dimension of the block, and a second dimension clearly greater than the corresponding second dimension of the block in order for the block to fit into the cache.

As per claims 8,13,16,19,21 and 22, although the combined of references does not specifically disclose, it would have been obvious applications to employ the teaching combined of references in executing subroutine from a Lapack, and in a problem solving as claimed to improve the speed of execution.

As per claim 23, as the block fits into the cache, the block size is clearly smaller or equal to the cache size.

7. Applicant's arguments filed 03/02/2007 have been fully considered but they are not persuasive.

Regarding the rejection under 35 USC 101, it is respectfully submitted that a method of executing a matrix subroutine, or computer or program implementing the method, if not limited to a practical application to reduce a useful, concrete, and tangible result would be directed to a non-statutory subject matter since it merely involves calculations and manipulations of data values and to produce a result also data values. Since the executing a matrix subroutine itself is non-statutory regardless how it is implemented, an improvement in executing the method is also non-statutory. Regarding claims 15-18, since the claimed invention is not limited to a computer readable storage medium, the recited "a signal bearing medium" clearly includes carrier signal and non computer readable storage medium, which are non-statutory subject matter.

Applicant's arguments with respect to art rejections have been considered but are moot in view of the new ground(s) of rejection.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (571) 272-3731. The examiner can normally be reached on Tuesday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chuong D Ngo  
Primary Examiner  
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05/14/2007